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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kok Keong Teo

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EXAMINER

RUSSELL, CHRISTINA MARIE

ART UNIT

PAPER NUMBER

2837

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/530,954	TEO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	CHRISTINA RUSSELL	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 59-86 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 59-86 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/05</u> .   | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Drawings***

1. Figure 2 is objected to under 37 CFR 1.83(a) because it fails to show the titles or labels of the blocks as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

4. Page 8, lines 11 and 28, of the specification, mention a melody transcription device 2; however, this device labeled with reference number "2" does not appear in the drawings.

5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the

changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

7. Figure 10 shows block 906; however; reference number 906 is not mentioned in the specification.

8. Figure 12 shows block 1115; however; reference number 1115 is not mentioned in the specification.

9. Figure 13 shows blocks 1222 and 1224; however; reference numbers 1222 and 1224 are not mentioned in the specification.

10. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be

notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

11. The disclosure is objected to because of the following informalities:
12. The Specification fails to discuss in detail many of the steps illustrated in the drawings. For example, on page 24, line 25, 1211 through 1221 are mentioned generally. That paragraph, along with the preceding one, discusses 1211-1215 and 1218-1221 specifically, however 1216 and 1217 are not touched upon in detail. Please make sure that if a process is shown in the drawings that it is discussed in the specification.
13. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

14. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

15. Claims 63 and 84-86 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

16. In it is unclear, in claim 63, which pitch values are being derived using the k-mean clustering; those of the blocks or those of the notes?

17. Claim 84 claims software operable according to the method of claim 59. Software alone cannot be claimed, which will be discussed below, and software or programs contain instructions, therefore, it is unclear how, or to what extent, the software of claim 84 is operable according to the method of claim 59. Also, it is unclear on what the software is loaded.

18. Claim 85 and 86 are also deemed indefinite since they comprise the software of claim 84. Further, claim 86 claims a computer having said software loaded, however, the software of claim 84 is already stated as being loaded onto an unknown device.

***Claim Rejections - 35 USC § 101***

19. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 84-86 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 84 claims a computer program per se but does not claim a medium on which the program resides. Software alone cannot be claimed; software must be claimed relative to the hardware on which it is implemented or run. In short, claim 84 claims a program, which is loaded on something that is not claimed, and is not stored on a computer readable medium and therefore is considered non-statutory. Claim 84 also fails to produce a tangible result, since, as stated above, under the heading 35 USC 112, it is unclear how, or to what extent, the method steps of claim 59 are implemented as a program.

Since claims 85 and 86 comprise the software claimed in claim 84 they too are considered non-statutory.



***Claim Rejections - 35 USC § 102***

20. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

21. Claims 59-83 are rejected under 35 U.S.C. 102(e) as being anticipated by the US patent application publication to Shih (US 2005/0086052).

22. In terms of claim 59, Shih teaches a methodology for detecting pitch values of notes in an musical sound signal, comprising the steps of isolating the notes, dividing the notes into groups, or note segments, containing blocks, or frames, deriving the varying pitches of the blocks, or frames, and deriving the pitch values of the notes by taking the median of, or clustering, the varying pitch values of the blocks, or frames (see paragraphs [0009]-[0013], [0023], [0024], [0026]-[0035], [0038], [0039], [0045]-[0055], [0057]-[0059], [0063], and [0066]).

23. As for claim 60, Shih teaches the use of note markers, or note features, within the frames, to isolate the notes (see paragraphs cited above, especially [0034], [0038], [0046] and [0053]).

24. As for claim 61 and 62, Shih teaches the preferred length and number of the frames and feature sets within the note segments, or groups (see paragraphs cited above, especially [0034] and [0053]).

25. As for claim 63, k-mean clustering is merely classifying, clustering or grouping of "n" objects, based on attributes or features, into "k" number of groups, or partitions. This is similar to that of the Gaussian Mixture Model, since both attempt to find the centers within a cluster of data, or in other words, to find the median value. Shih teaches the use of the Gaussian Mixture Model to derive the median pitch value of the note segment using the varying pitch values of the blocks or frames (see paragraphs cited above, especially [0012], [0013], and [0051]).

26. As for claim 64, Shih teaches the use of rounding values to the nearest note value (see paragraphs cited above, especially [0048]).

27. As for claim 65, Shih teaches the use of a silence, or rest, model, to prevent errors of segmenting, or isolating, the notes (see paragraphs cited above, especially [0012], [0013], [0039], and [0066]).

28. As for claim 66, it has already been shown in claim 60 that Shih teaches the use of determining note markers, or note features, for isolating, or segmenting, the notes (see references cited above).

29. As for claim 67, Shih teaches the step of transcription, where after the note segmentation and pitch deriving steps, the notes are extracted and transcribed into a sequence of note symbols, or notational representation (see paragraphs cited above, especially [0059]).

30. As for claim 68, Shih teaches the input of the musical sound signal into a microphone, connected to a computing machine, which receives acoustic wave signals and digitizes them (see paragraphs cited above, especially [0002], [0004], and [0023]).

31. As for claims 69 and 70, Shih teaches the musical sound signal as an acoustic humming signal, inputted by a person (see paragraphs cited above, especially [0022] and [0023]).

32. In terms of claim 71-83, Shih teaches a system which uses the methodology described above (paragraphs [0022]). The rejection of claims 71-83 mirror that of claims 59-70 respectively, given the apparatus is inseparable from the method of using the apparatus (see references cited above).

### ***Conclusion***

33. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please see the Notice of References Cited provided by the Examiner, in particular the US patents to Tsuruta et al. (5,038,658), Sonoda (6,121,530), Ghias et al. (5,874,686), Pauws (US 2007/0162497), Zhang (6,476,308), Peevers (5,986,199), Finn et al. (US 2003/0023421), and Ando (5,936,180).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINA RUSSELL whose telephone number is (571)272-4350. The examiner can normally be reached on Mon-Fri, 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on 571-272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CR  
5/7/2008  
/Lincoln Donovan/  
Supervisory Patent Examiner, Art Unit 2837